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## Waiting for Hotter Weather

By Vicki Arroyo Cochran

The Earth is warming. The 1990s were the hottest decade of the entire millennium, and 1997, 1998, and 1999 were three of the hottest years ever. By 2100, global temperatures are projected to increase another 2°F to 7°F, with warming in the United States expected to be even higher. The growing scientific consensus is that this trend is largely the result of emissions of carbon dioxide (CO<sub>2</sub>) and other greenhouse gases from industrial processes, fossil fuel combustion, and changes in land use, such as deforestation. In addition to warming, scientists predict changes in precipitation, including more frequent floods and droughts. These changes over time are broadly referred to as "climate change."

Yet despite the increasing scientific consensus that human-induced climate change is occurring, U.S. action to address this problem is currently stalled. Much of the domestic policy debate has focused on the significant cost of reaching reduction targets for greenhouse gas emissions and the lack of similar targets for developing countries. While we debate these issues, a growing number of countries and companies already are taking serious steps to address climate change. By acting now and developing new approaches and technologies, these governments and businesses will likely yield both environmental and economic benefits.

Many countries, including the United States, have signed and ratified the 1992 United Nations Framework Convention on Climate Change, pledging to reduce greenhouse gas emissions to 1990 levels. However, the Kyoto Protocol to the convention, developed in a 1997 conference in Japan, has not yet entered into force.

The Kyoto Protocol establishes reduction targets for 38 developed countries and allows flexible mechanisms, such as emissions trading, joint implementation among developed countries, and the Clean Development Mechanism (funding projects in developing countries). Because greenhouse gases are ubiquitous and contribute to warming regardless of where they are emitted, the ability to pursue cost-effective reductions anywhere through emissions trading or foreign projects can reduce overall greenhouse gases at the lowest possible cost.

The international negotiations to further define the protocol continue, focusing largely on how to structure flexible mechanisms, how to address carbon sequestration (storage of CO<sub>2</sub> in trees and soils to help reduce atmospheric levels), and how to ensure compliance with the agreed-upon targets. As these negotiations continue, many nations and companies already are reducing their emissions.

Many member states of the European Union are taking action to reduce their contributions of greenhouse gases to the atmosphere. In addition, the European Union has committed itself to ensuring that CO<sub>2</sub> emissions from its member states in 2000 would not exceed 1990 levels, a goal that the European Union expects to meet. The EU's ability to reach this target is due largely to efforts of Germany and the United Kingdom. Germany has initiated a program that includes a reduction of coal use, voluntary agreements with industry, traffic measures, pollution taxes, a greater emphasis on renewable energy, and combined production of heat and power. The United Kingdom has already achieved more than a 14 percent reduction—exceeding its 12.5 percent

Kyoto target-primarily by switching from coal to natural gas. Britain has also announced a program that includes domestic emissions trading and new energy taxes.

The Danish government has already secured legislative authority to implement a trading program of its own, and similar programs are being developed in Norway and Sweden. The parliament of the Netherlands has approved a more traditional regulatory program and increased energy taxes. In other parts of the world, Australia has invested \$400 million in developing renewable energy technologies and has embarked on a reforestation effort. Japan has adopted higher energy efficiency standards for automobiles, appliances, and buildings.

Despite the lack of reduction targets for developing countries in the Kyoto Protocol, some key nations, such as India and China, have begun to seek cost-effective options to slow their growth of greenhouse gas emissions.

### **Private Sector Progress**

In the private sector, a growing number of companies are taking action. BP Amoco and Shell have established their own reduction targets of 10 percent below 1990 levels and are implementing emissions trading programs that are yielding efficiency benefits at their facilities worldwide. DuPont has pledged to reduce greenhouse gas emissions from its facilities to 65 percent below 1990 levels by 2010 (with an additional commitment to obtain 10 percent of their energy from renewable sources), a goal far more ambitious than the 7 percent reductions slated for the United States as a whole under the Kyoto Protocol.

Unfortunately, because no U.S. government program yet exists to limit greenhouse gas emissions, companies that take action now face some risk that their reductions may not be credited under a future domestic emissions control regime.

To encourage companies to reduce emissions immediately, a bill to reward "credit for early action" (S. 547) was crafted in 1999 by the late Sen. John Chafee (R-R.I.) and Sens. Connie Mack (R-Fla.) and Joseph Lieberman (D-Conn.). Reps. Rick Lazio (R-N.Y.) and Calvin Dooley (D-Calif.) introduced similar legislation in the House last year (H.R. 2520).

Voluntary "early action" legislation would encourage businesses and other entities to reduce their contributions to climate change as soon as possible. Such legislation would remove barriers to action by protecting those who act first and by creating credits for reductions—credits that could be valuable to companies in a domestic or global greenhouse gas market. Though the concept is sound, crafting sound and viable legislation has proven to be a challenge, and the current political climate and the loss of Chafee's leadership on this issue make progress unlikely.

Some opposed to credits for early action are promoting an alternative approach that extends existing voluntary reporting programs and research. Bills such as S. 882 by Sen. Frank Murkowski (R-Alaska) and S. 1776 by Sen. Larry Craig (R-Idaho)—both introduced in 1999—promote research on climate science and technologies and expand and consolidate the existing voluntary reporting system managed by the Department of Energy. Craig has also introduced S. 1777, which would provide a research and development tax credit to companies that reduce greenhouse gas emissions.

Other, more-targeted bills have been introduced to limit emissions from power plants and encourage sequestration of carbon through forest and soil management. (Although it is not a

panacea, capturing and storing carbon—if done well—can help offset warming and potentially buy time while policies and more efficient technologies are developed.)

Reps. David McIntosh (R-Ind.) and Joseph Knollenberg (R-Mich.) have taken a more restrictive approach, seeking to force a debate on Kyoto ratification now and opposing any government action in the interim that could be interpreted as implementing the protocol. Given this political climate, development of a comprehensive domestic program to address climate change appears unlikely in the near future.

## **Market-Based Approaches**

Although the prospects for legislative movement this year are dwindling, there is growing consensus among business and government leaders that some action to reduce greenhouse gases ultimately will be required. Some analysts and advocates outside of government are trying to design such a program, in hopes that the political situation may improve in the future.

Two Washington, D.C.-based think tanks—Resources for the Future (RFF) and the Progressive Policy Institute (PPI)—have proposed carbon emissions trading programs modeled generally on the successful U.S. acid rain program that reduced sulfur dioxide (SO<sub>2</sub>) emissions. Such programs allow businesses complete flexibility to choose their compliance methods and to buy and sell the right to emit. While the RFF and PPI proposals would establish an emissions trading market, their approaches differ in several important respects.

The PPI proposal places a cap on emissions at year 2000 levels. This emissions cap declines over time so that near-1990 levels are achieved by 2012. In contrast, the RFF program caps emissions at 1990 levels. However, this "cap" is effectively lifted should reduction costs exceed \$25 per ton of carbon. Rather than a declining emissions cap, this cost cap increases by 7 percent per year. RFF's program is limited to "upstream" facilities (all domestic energy producers and importers), while PPI's focus is "downstream," encompassing sources over a certain size in all sectors, including government. The PPI proposal "grandfathers" (or gives away for free) 95 percent of the year 2000 emissions to existing sources, initially auctioning off 5 percent—with the auctioned amount increasing over time. RFF proposes a 100 percent auction from the start: returning revenues to households to defray higher consumer prices and to states to assist with transition of affected industries, workers, and/or communities. The PPI proposal has reporting and public notification requirements similar to those of the Securities and Exchange Commission and the Environmental Protection Agency's Toxics Release Inventory program. It also provides credit for "real" early reductions (undertaken between 1993 and 2000).

While both the RFF and PPI proposals attempt to harness market forces through creation of a domestic trading system, the viability of any cap and trade program is questionable in the current political climate. And the challenge of translating the success of the relatively small acid rain program to the much more complex climate policy realm will be significant.

Both approaches have important unresolved issues. For example, while appealing from a "polluter pays" perspective, the RFF approach of auctioning permits is unprecedented in the emissions trading area and is likely to be quite controversial. (The SO<sub>2</sub> trading scheme allocated an initial amount of permits to pre-existing sources.) Also, it is currently unknown whether the "safety valve" of \$25/ton is set too high (and thus could drive up the cost of reductions) or too low (and thus will not achieve the targeted environmental benefits).

The PPI program's applicability to numerous "downstream" entities—including government agencies—raises concerns regarding program complexity, transaction costs, and possible conflict of interest for regulators. Despite these and other concerns, the dialogue about what a domestic emissions program could look like and the growing list of policy approaches and range of their proponents is encouraging.

## **Moving Forward**

Addressing the challenge of climate change will likely require a mix of approaches. Any future program should include: protections (or preferably, rewards) for companies that act early to reduce their emissions, support for R&D and new efficient technologies, and market mechanisms such as emissions trading and tax credits. And while we focus on the effectiveness of any proposed policy, we should also be mindful of its distributional impacts. Facilitating a transition to a new economy based on lower consumption of fossil fuels will not be painless. The actions being taken by countries and companies prove, however, that climate change can be addressed while maintaining economic growth. To start this process, we need to move away from debating what developing countries are doing or not doing and focus instead on what makes sense for us here at home. Rather than remain paralyzed by the thought of how expensive emissions reductions could be, we need to actively harness American ingenuity through technological innovation and market-based policies. Rather than focus on the discomfort that weaning ourselves from fossil fuels might cause, we should craft solutions that help affected industries, their workers, and communities cope with the transition.

Formulating a politically viable and effective domestic program that will significantly reduce our production of greenhouse gases will undoubtedly be a challenge. But if we act now, we can afford to do things more intelligently. The United States should take aggressive steps to develop the energy sources and technologies that will take us well into the next century, without compromising our economy or our children's future.

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